Columbus Manufacturing Company, 1899
32nd Street and First Avenue
Columbus
Muscogee County
Georgia

HAER GA-29

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
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HISTORIC AMERICAN ENGINEERING RECORD

Columbus Manufacturing Company

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Location:	32nd Street and First Avenue, North Highlands, Columbus.
Date of Construction:	Operations commenced 4 July 1901; 2nd addition 1910; weave sheds, 1919.
Present Owner:	West Point Pepperell Manufacturing Company, West Point, Georgia.
Present Use:	Textile Mill
Significance:	The mill was built to use electric power from the North Highlands dam of the Columbus Power Company which was built at the same time. The turbines were wired to motors which turned a rope drive in the mill. The combination of power transmission media is a meter of the state of the art of electrical utilization in 1900-1910. Conversion from line shafting and belting to individual electric motor drive which began in 1934 is not yet complete.
Historians:	J. B. Karfunkle John S. Lupold Barbara A. Kimmelman, 1977

Columbus Manufacturing Company

The Columbus Manufacturing Company, now the West Point Pepperell Manufacturing Company, is located on North Highlands, 1500 feet south of the Columbus Mill of the Bibb Manufacturing Company of Macon, Georgia (photos 1 & 2). Construction of this mill was coincident with the development of the North Highlands water power and the building of the Bibb Mill (see The Bibb Company, HAER report 1977).

Directors of the Bibb Company also were officers of the Columbus Power Company during that period. The great power available at the falls could be economically developed only if it all could be consumed. The Bibb/Columbus Power Company decided to sell the sub tantial horsepower developed which it could not utilize mechanically in its own plant.

Columbus Manufacturing built its plant to take advantage of this surplus power. F. B. Gordon, who organized the Columbus Manufacturing Company, became the first and largest power customer of the hydrodevelopment. Ground was broken for this plant 13 October 1899 while construction began at the dam and Bibb Mill sites; construction of the three were interdependent due to the nature of the power source (see HAER reports Bibb Company and Hydropower Development at Falls of the Chattahoochee).

The Columbus Manufacturing Company was organized in 1899 with both local and outside capital involved. [1] Plans were drawn up for a 10,000 spindle mill; these were revised in April, 1900 to a 17,500 spindle operation. The mill officially commenced operations on 4 July 1901; the first finished product appeared on the market place 1 August 1901. [2]

The original mill was similar to that of the Bibb Company. It is four stories tall, 300 feet long (east-west) and 120 feet wide (see photo 3). On the north side is an annex which originally contained the motor rooms. Approximately 75 feet from the west end of the building was the 20-foot wide ropeway, or beltway, housing the rope drive system. This beltway was an open alleyway four stories high oriented parallel to the west side and it opened into the motor room [3] (see photos 4 & 5).

The original power distribution system to the Bibb mill was also a rope drive. Power from the North Highland Dam was transmitted from turbines in the lower power house to the Bibb Mill by an American, or continuous, rope drive system. From there power was sent via the main shaft to the driving sheaves of another, vertical, American drive system which distributed power to each floor of the mill. [4]

Power transmission to the Columbus Manufacturing Company differed only slightly; the differences offer insights into the state of the art of electrical power transmission. Electricity generated at the upper

power house, at the North Highlands Dam, was transmitted to the motor house at the Columbus Manufacturing Company at 5500 volts a.c. Two large General Electric synchronous motors, one of 400 horsepower capacity and one of 600 horsepower capacity, stood in a line so as to turn a main shaft in the motor house. Each motor was attached to a separate induction starter motor which brought the big motors up to synchronous speed at 225 rpm. A 9-kilowatt, 125 volt dynamo which belted to the mainshaft provided field excitation for both synchronous motors. [5]

The mainshaft drove large sheaves situated at the base of the beltway. The multiple ropes of the European rope system wrapped around the grooves of these driving sheaves. Receiving sheaves were located on each floor in such manner that ropes going to the first floor sheaves, second floor sheaves, etc., formed an increasing angle with the vertical. That is, receiving sheaves on the first floor were on the north side of the floor; those on the second floor were near the center of the floor, those on the fourth floor were on the south side of that floor. Line shafting driven by the receiving sheaves was located on each floor both east and west of the ropeway. [6]

In the European rope drive system, a number of endless rope loops travel between the main driving sheaves to the receiving sheaves of a floor. Thus if one of the ropes broke the remaining ropes can carry the load. There is no pulley device for tension control as there is in the American system; tension is provided by the weight of the rope.

In 1910 the east end of the mill was extended 240 feet (see photos). A similar arrangement of electric motor and rope drive powered the new addition. The new beltway was located between the older mill and the new section [7] (see Col.mfg photo 7).

Comparing the power distribution systems of the Bibb Mill with this system, it is clear that the electricity to this mill from the upper power house on the dam served merely to replace the rope drive working between the Bibb Mill and the lower power house. The real advantage of electricity is realized when ropes, shafting, and belts are eliminated in favor of individual motor drive, a trend developing in the 1920's. At Columbus Manufacturing electricity merely transmitted power to a spot at the mill where it was distributed mechanically. Conversion to group drive and later individual drive, began in the original mill in 1934. The rope drives were gradually phased out through the 1930s and 1940s, when the last of the rope drive mechanism was dismantled. Today one carding room is still powered with group drive; the rest of the mill equipment has individual motors. [8]

The business history of the company has been characterized by early expansion and conservative development. The original mill had 25,000 spindles, about 10,000 more than originally planned. Before the 1910 expansion, the number of spindles was 50,000. Today, the mills total

is just 73,000 spindles; the 1910 addition did not expand the company's capacity beyond beyond its available market. The only later expansion involved construction of weave sheds in 1919 for additional loom space (see photo 6).

Conservatism is also revealed in the arrangement of textile machinery. In the original mill, the section west of the power beltway housed slashing, drawing, picking and spooling operations. Part of the beltway on floors 1 and 2 was weaving, carding was on the 3rd floor, and spinning on the 4th. This remains the arrangement today, with a few minor changes. Spinning and weaving is done in the 1910 addition. [10] Making such few changes since acquisition in the late 1940s, West Point Pepperell has retained the modest scale and market of the earlier owners, and continues to produce commercially successful industrial fabrics. [11]

Footnotes

1. Local directors of the company were F. B. Gordon, W. C. Bradley, J. Rhodes Browne, and E. P. Dismukes - all local industrialists. Foreign capital included moeny from Wellington and Sears, who were selling agents for the mill; this was a typical arrangement. All outside capitalists were from Boston.

2. Oral interview with E. G. Hubbard, Plant Manager, conducted by John S. Lupold, 10 August 1977.

3. Sanborn Insurance Map, Columbus, Georgia: Sheet 23 1900

4. See HAER Report on Bibb Company, Columbus Plant, 1977.

5. "Plant of the Columbus Power Company," The Electrical World and Engineer 43 (23 January 1904), 167.

6. Inspection of amps and from interview with Mr. Hubbard.

7. Sanborn Insurance Map, vol. 2, 1929, sheet 257. Date of addition from Hubbard interview, verified date on map. The addition increased spindles to 50,000. By 1912 there were 64,000 spindles.

8. Carding on this floor of the mill is still powered by line shafting and belts driven by electric motors hung from the roof (Interview with Mr. Hubbard).

9. 700 of these were Draper Automatic "E" Looms in 1904. Telephone interview with Donald Marshall, Hopewell-Draper Corporation. Spartanburg, S.C., conducted by John S. Lupold; also Hubbard Interview.

10. Hubbard Interview; Associated Factory Mutual Insurance map of West Point Mfg. Co, Columbus, Ga., surveyed 27 May 1953 by D. B. Main, revised from Department Files 4 March 1959.

11. Hubbard Interview, for product line.

Bibliography

Interviews

Oral interview with E. G. Hubbard, Superintendent of the Columbus Plant of the West Point Pepperell Manufacturing Company, conducted by John S. Lupold, 20 July 1977.

Printed Sources

"European Rope Driving Practice", Power Magazine, February, 1897. This article gives a good illustrated description of the typical European rope drive system.

"Plant of the Columbus Power Co., Columbus, Georgia", Electrical World and Engineer 43 (23 January 1904), 156-168. This gives a description of the original Bibb and Columbus Manufacturing rope drives, and the motor room of the latter company.

Maps

Sanborn Insurance Maps of Columbus for 1900 and sheet 23, 1929 volume 2, sheet 257 give lists of equipment in use and other useful information.

West Point Manufacturing Company, Columbus, Georgia, Insurance Map of Associated Factory Manual Fire Insurance Companies, Norwood, Mass. serial 40892-R, 4 March 1959; from factory files.